THE CARNEGIE FOUNDATION
FOR THE ADVANCEMENT OF TEACHING

COLLEGE ATHLETICS AND SCHOLARSHIP

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PART III

PROFESSIONAL STUDIES

COLLEGE ATHLETICS AND SCHOLARSHIP

IT has become a commonplace of the adverse criticism passed upon American college athletics that they weaken the intellectual spirit and lower the academic standing of undergraduates. There has likewise developed a series of defensive sallies, designed to establish the claim that athletics, as organized in the colleges to-day, do not weaken the scholarly tendencies. It is claimed that football, baseball, tennis, rowing, and other sports stimulate the brains of players to do better college work and, through rewards and honors, offer valuable incentives to the maintenance of high standing. About this clash of opinions cluster many other questions, which are extraneous to the fundamental issue. During the past year, the Foundation, in the course of a study of American school, college, and university athletics, with the co-operation of a number of agencies, has sought an answer to the question, What is the relation of athletics to scholarship in American colleges and universities? At this moment it is not possible to pronounce judgment on the merits of the opposing views just mentioned. The purpose is merely to outline the steps that have been taken in the attempt to devise a valid means by which the question may ultimately be answered.

I. The Academic Standing of American College Athletes

In view of the positiveness with which writers and speakers on both sides of the controversy have assured an interested public that athletics help or hinder scholarship, it was fair to assume that there exists a body of statistical data sufficiently comprehensive and accurate to justify such arguments. Yet extensive examination of the literature of college athletics has revealed no such mass of material, nor is there evidence that anything of the sort has ever been assembled. The inference is inevitable that those who have attacked or defended college athletics on this ground either have argued mainly from opinion or have based their contentions upon cases too small in number to be significant. Perhaps it is only natural that the opponent of college sport should draw what comfort he can from the failure of the football captain or the "star" to receive his degree, just as it is usual for the supporter of athletics to point with pride to scholastic honors earned by undergraduate sportsmen. In any case, opinion has been confused with fact, reasoning has been too often based on insufficient evidence, and in the heat of controversy the cool judgment that both studies and athletics are supposed to bestow upon their heroes, has been conspicuously lacking.

A number of institutions have made for their own purposes statistical enquiry into the academic standing of their athletes. In the hope of gathering these results in a

48662

form that would be not only comparable but serviceable to all institutions, letters were dispatched to some five hundred universities and colleges requesting that such materials as were available be sent to the Foundation in printed or other form. Data or conclusions were received from forty-four institutions.[1]

In most of these colleges much care and time have been expended upon the enquiries. While assembling and considering the results, the trustworthiness of the figures must be taken for granted. Yet, as was anticipated, the studies afford materials that are comparable only as regards general tendencies. The definition and classification of an athlete were omitted in practically every case. Naturally, each institution made use of its own system of grading; some grade on a basis of percentages, some on a literal basis, others on a basis of 4, 1, or 3, and still others employ a point or credit system. A few did not indicate the grading basis in the materials that they sent. Finally, the number of athletes, of students, and of non-athletes was in no instance given, and there was no agreement as to the years or the classes to which the materials pertained. Indeed, the most characteristic feature of the material appeared to be the fact that each study differed from all of the others.

In order to exhaust the possibilities of the mass of materials thus kindly supplied, they were subjected to study by three examiners, no one of whom had any regard to the other.[2] The inferences that resulted from this study are neither many nor conclusive. Such as they are, they may be set forth as follows:

1. A total of 44 institutions reported concerning the relative averages of participants in athletics.
   Of 2 institutions reporting on the standing of football men,
   1 stated that only 25 per cent of the football men averaged up to the average of their groups, which in this institution are formed by individual instructors on the basis of academic grades in each course,
   1 stated that the men in the junior and senior classes who did not participate in football ranked slightly higher than those who took part.
   Of the remaining 42 institutions,
   13 compared the standing of the athletes with that of the men students:
   In 8, athletes averaged higher than the men,
   In 5, athletes averaged lower than the men.
   19 compared the standing of athletes with that of the whole student body:

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[1] The institutions which coöperated in sending material were the Municipal University of Akron, University of Arizona, Ashland College, Butler College, Capital University, Colgate University, Colorado Agricultural College, Colorado School of Mines, University of Colorado, De Pauw University, College of Emporia, Hampden-Sidney College, Harvard University, University of Illinois, Indiana University, Iowa Wesleyan University, University of Kansas, Lafayette College. University of Louisville, University of Maine. Massachusetts Institute of Technology, University of Michigan, Middlebury College, Millsaps College, Milton College, Montana State College, Morningside College, Mt. Union College, University of Nevada, North Carolina State College of Agriculture and Mechanic Arts, North Dakota Agricultural College, Oregon State Agricultural College, College of the Pacific, Pennsylvania State College, College of Puget Sound, University of Rochester, Rutgers University, Southern Methodist University, Stanford University, Union College, Adelbert College of Western Reserve University, Westminster College, College of Wooster, Yale University. The coöperation of these universities and colleges is gratefully acknowledged.

[2] In the offices of the Foundation, by the Personnel Research Federation, and by Mrs. Ruth Burns Willett.

    - In 5, athletes averaged higher than the whole student body,
    - In 11, athletes averaged lower than the whole student body,
    - In 3, athletes averaged the same as the whole student body.
  - 10 institutions compared the standing of athletes with the standings of both the men and the whole student body:
    - In 1, athletes averaged higher than both the men and the whole student body,
    - In 7, athletes averaged lower than both the men and the whole student body,
    - In 2, athletes averaged higher than the men, but lower than the whole student body.

2. A total of 12 institutions reported averages for participants in non-athletic extra-curricular activities.
   Of these,
   - In 2, athletes averaged higher than participants in activities other than athletics,
   - In 10, athletes averaged lower than participants in activities other than athletics.
3. A total of 11 institutions reported averages specifically for students not participating in athletics.
   Of these,
   - In 6, athletes averaged higher than non-athletes,
   - In 5, athletes averaged lower than non-athletes.
4. A total of 15 institutions reported averages for members of fraternities.
   Of these,
   - In 8, the athletes averaged higher than the members of fraternities,
   - In 7, the athletes averaged lower than the members of fraternities.
5. A total of 20 institutions used percentages in reporting average grades for athletes; some or all of these institutions reported average grades of various groups for comparison as follows: all students, men, participants in extra-curricular activities, fraternity members, non-participants in athletics. The percentages indicating average grades on a basis of 100 are as follows:

Participants in non-athletic activities	80.8
All students	79.4
Students participating in neither athletics nor non-athletic activities	78.2
All men	77.4
Athletes	77.3
Fraternity members	76.6

6. In the reports giving percentages, the range of difference between the averages of athletes and the averages of the student body or of the group of men was from −2 per cent to −6.88 per cent. Of these 22 cases,

In 9, there was a difference of 2 per cent or more,
In 13, there was a difference of less than 2 per cent.

However interesting these results may be, they are, it must be insisted, inconclusive. Some of the reasons for their inconclusiveness have already been indicated. But there are other considerations, among which two are most important: lack of objectivity, and the absence of common grounds of comparison. It became apparent that if comparable data of interest to a great number of institutions were to be obtained, another attack must be made, a fresh approach taken, and a new yet simple technique devised, which in practical enquiry would yield trustworthy results whether applied to many universities and colleges or to a single institution.

II. A STUDY OF ATHLETICS AND SCHOLARSHIP IN COLUMBIA COLLEGE

At the outset of the second enquiry several considerations were laid down as essential to success. In the first place, the enquiry should be as objective as it was possible to make it. The information should be gathered as nearly as practicable from official records. The mathematical calculations, though far from complicated, should be conclusive, with a minimum of loadings or compensations. Secondly, the data should be complete. It was desirable that not only course grades but the results of aptitude tests should be included.

Finally, although one kind of objectivity could be readily obtained through a lack of experiential knowledge of the institution studied, nevertheless the institution must be situated not far from the offices of the Foundation to facilitate consultation over doubtful points that might arise. Happily, the project interested officers of Columbia University, who have afforded every facility for it and whose suggestions have been of the greatest value.

In an endeavor to secure an added measure of detachment, the Foundation was so fortunate as to be able to enlist the services of the Personnel Research Foundation.[1] The problem then resolved itself into an attempt to devise a technique for a comparative study of the academic grades of athletes and others in a single class of Columbia College. Because completeness of academic experience was thought to be desirable, the class of 1925, which had entered in 1921, was selected, and the college careers of its members were followed for five years,—one year after the normal period required for graduation. Photostat copies of the records of the 666 members of the class were delivered to the Foundation and transmitted to the Federation.

A. PRELIMINARY STEPS IN THE STUDY

After an inspection, these records were subjected to certain tests by means of which all materials unsuitable to the enquiry in hand were discarded. First, the records of 100 men who graduated with the class but who did not enter Columbia

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[1] Dr. Walter V. Bingham, Director of the Federation, designated Dr. Max Freyd, Research Associate, to have immediate supervision of the work.

College with it in September, 1921, or February, 1922, were removed. Next, men who entered with twenty hours or more of advanced standing and who numbered 64 were not considered, nor were 35 men who dropped out before completing one semester's work. It proved impracticable to attempt to use certain records of eight students transferring from other institutions. Finally, 23 records otherwise available showed no scores received in intelligence tests. After these 230 eliminations the number of records that were initially selected as suitable material for study was 436. It was necessary to reduce this number still further at a later stage of the work.

B. Defining the Term "Athlete"

The work on the data that had been received from the forty-four colleges having shown the necessity of much care in determining the meaning, for this study, of the terms "athletes" and "non-athletes," steps were taken to compose these two groups practically and rationally rather than empirically. Three sources of material for definitions of the groups were canvassed. First, general knowledge and common report—even specialized and personal knowledge concerning undergraduates on the part of officers of the University—were omitted because the attempt was being made to discover a method of study as nearly universal in applicability as possible and because of apprehension lest similar funds of special information might not be available at all other institutions. The ideal of objectivity also precluded this source. Secondly, the records of the Athletics Office were omitted for similar reasons. Finally, with a view to making use, wherever possible, of published documents, the student yearbook, the *Columbian*, was selected as fulfilling most of the requirements of detachment. Although this publication, not being official, is in a measure inconclusive, nevertheless the *Columbian* belongs to a type of publication available at a great number of institutions. College yearbooks the country over contain comparable data set forth in a form that has become almost standardized. The accuracy of the yearbook is generally assured by the fact that the book is intended for publication and distribution to an interested group of readers, most of whom have themselves supplied the personal data that it contains. All things considered, the college yearbook is probably the best documentary source available from the point of view of comparability. In other studies, athletic records and the yearbook might be employed as checks upon each other and upon the personal knowledge of officers.

At length two working definitions were framed, which follow:

1. An athlete is a male undergraduate mentioned in the yearbook as having been a member of a university or freshman team or crew, even if he was not awarded insignia.
2. A non-athlete is any other male member of the group.

C. Applying the Definitions

In the application of these somewhat arbitrarily framed criteria to the 436 surviving members of the original group of 666 men whose records were available, two further considerations, of classification and of availability, were canvassed.

As regards classification in one or the other of the two groups of athletes and non-athletes, undoubtedly a few men, who had competed for teams and nevertheless were not mentioned in the yearbook, were classified as non-athletes, although it is believed that whatever inaccuracy is inherent in this procedure is more than compensated for by the gains in objectivity and in sharpness of definition of the groups.

Another problem of classification arose over managers of teams. The opinion appears to be widely held that managing a college team or even a class team makes large demands upon both time and vitality. On account of the fact that management is one of the important phases of college athletics in the United States, the opinion has been expressed that the present enquiry should include managers and assistant managers of teams. After due consideration, however, these men were classed as non-athletes by definition unless they themselves took part in contests. Not more than thirty men were affected by this procedure. It would be more illuminating to select managers and assistants for special study than to classify them as athletes in the present enquiry, and thus to obscure its results, however slightly. It is probable, also, that segregating football men from other athletes in more respects than are attempted in the present discussion would prove to be an especially illuminating procedure.

Difficulty of identification from documentary sources accounts further for the elimination of thirteen others of the 436 survivors. In a check of the names and identities of all men who are mentioned in two successive yearbooks as being of the classes of 1924, 1925, and 1926 in Columbia College, a number of cases involving doubtful identity arose. On comparing records and photographs, these cases were reduced to thirteen, and the thirteen records were eliminated.

The final survivals in the two groups then numbered 423, of whom 86 were classified as athletes, and 337 as non-athletes.

D. Athletic Teams in the Study

The *Columbian* of 1924 and 1925 mentioned twenty-four athletic organizations, representative of the college or of the class, as having drawn their membership from the group of athletes under consideration. None of these organizations is of the type that is designated as "intra-mural" at many universities and colleges. If the seven freshman organizations appear to be exceptions to the rule, it should be recalled that most freshman schedules at Columbia College are rather more extra-mural than intra-mural. In case a similar study were made of athletics and scholarship at an institution that especially emphasized an essentially intra-mural program of sports, two courses of enquiry are open: either the same grouping might be adopted and intercollegiate and intra-mural participants grouped together as athletes; or, more fruitfully, a division into three groups—intercollegiate athletes, intra-mural athletes, and non-athletes—would probably prove desirable.

The organizations under consideration are listed in Table 1.

TABLE 1

ATHLETIC ORGANIZATIONS (24) REPRESENTED IN THE STUDY

Sports (11)	*'Varsity Organizations* (17)	*Freshman Organizations* (7)
Football	First eleven	First eleven
	Junior eleven	
Rowing	First crew	Crew and coxswain
	Junior crew	
	150-pound crew	
	Third crew[1]	
Baseball	'Varsity nine	
Track and Field	'Varsity track team	
	'Varsity cross country	
Basketball	'Varsity five	First five
Wrestling	'Varsity team	First team
	Junior team[1]	
Fencing	'Varsity team	Team
Swimming	'Varsity team	Team
Water polo	'Varsity team	
Tennis	'Varsity team	Team
Golf	'Varsity team	

E. THE DATA AND THEIR TREATMENT

As in the case of the study of the materials from the forty-four colleges, so in the case of the records from Columbia College, the primary object of the enquiry was to exhaust the pertinent possibilities of the data. Certain procedures were, of course, obvious from the beginning. During the progress of the work, others emerged as equally desirable. It is therefore clearer to abandon, in this discussion, the order in which the steps of the study were taken and to follow a more logical order, at the same time explaining such detail as seems necessary for complete understanding.

Three main classes of information were available: the scores of intelligence tests, materials bearing upon length and character of academic connections, and grades received in courses. Out of these grew the following questions, answers to which were sought statistically in the materials:

First, what relation if any exists between intelligence scores of athletes and those of non-athletes?

Second, what relation if any exists between length and character of academic experience touching graduation, probation, and years spent in college?

Third, what difference if any exists between the course grades received by athletes and those received by non-athletes? In addition, what testimony do the materials bear touching selection of courses—for example, as between difficult and easy courses—and the proportions of grades near the passing line received in both groups?

Finally, what generalizations or conclusions concerning methods employed can be drawn from the processes thus outlined?

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[1] Mentioned in only one yearbook.

1. *Records of Intelligence Tests of Athletes*

Columbia College was among the first institutions to make use of intelligence tests as criteria for admission. Hence for the 423 men of the two large groups, the records of scores from such tests were deemed to be of unusual value because of the years of experience in intelligence testing that lay behind them. Naturally the first step in statistical treatment was to compare these two groups, one of 86 athletes, the other of 337 non-athletes, as regards intelligence scores. At entrance, each of these men had taken the Thorndike Intelligence Examination for High School Graduates, in which scores may range from 0 to 120. Perusal of the records showed the average scores of the two groups to be as follows:

Non-athletes	79.01
Athletes	77.74
Difference	1.27

This difference, being less than three times as great as the standard error, .80, is not significant.[1]

2. *Records of Graduation, Probation, Years in College, Program Load*

An attempt to discover the facts which give rise to the charges that athletes are less likely to graduate from college than non-athletes, that a greater proportion of athletes suffer probation during their college course, and that athletes take lighter programs, led to a comparison of the two groups in these particulars.

a. Graduation, Probation, and Years in College

The proportions in Table 2[2] are percentages of the whole groups; the whole numbers with decimals represent years in college.

A word concerning the implications of probation at Columbia College will perhaps clarify the term. Probation implies that, although the student may continue his course, his academic situation is not safe. A student is placed upon probation by official action of the Committee on Instruction, functioning as an executive committee of the Faculty. Notices are sent to students and to parents or guardians. A student on probation may not participate in athletics or in non-athletic extra-curricular activities. The removal of probation follows the requisite improvement of the student's work.

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[1] This conclusion was reached by application of formulas Kelley (1923) 29, and Kelley (1923) 140. If the difference had exceeded 4.74, equalization would have been brought about through elimination by chance selection in the upper range of the non-athletes in test scores. This process could have been carried out without seriously affecting the form of the distribution curve or exercising undue selection regarding other factors than intelligence.

By comparing the difference in standard deviation of the two groups with the standard error of this difference, the question whether there existed significant difference in variation in tested intelligence in the two groups was answered in the negative. Hence no adjustments for intelligence in either group were made.

It is not believed that, in studying intelligence test scores at single institutions, either of these checks is necessary. They are, however, widely known, and, since they involve no advanced mathematical treatment, they are not so formidable as they appear at first glance.

[2] As a check upon this comparison, the formula for the standard error of a difference in proportions was employed, (Yule, 1917, p. 269, Formula 6). The following meanings were given to the symbols: p_1, proportion of non-athletes graduating (or on probation); q_1, proportion of non-athletes not graduating (or not on probation); p_2, proportion of athletes graduating (or on probation); q_2, proportion of athletes not graduating (or not on probation); n_1, n_2, numbers of individuals in the two groups. The mathematical processes involved in solving the equation are multiplication, long division, and addition. Tables in Bingham and Freyd, *Procedures in Employment Psychology*, 1926, appendix, might be used, or even a slide-rule might prove sufficient in fairly expert hands.

TABLE 2

PROPORTION OF ATHLETES AND OF NON-ATHLETES OBTAINING DEGREES AND INCURRING PROBATION, WITH YEARS SPENT IN COLLEGE

	Percentage obtaining degree	*Percentage on probation*	*Average years spent in college*
Athletes	.49	.69	3.50
Non-athletes	.53	.21	3.01

Thus, a smaller proportion of athletes than of non-athletes obtained their degrees, although the athletes spent on the average almost a semester longer in college. The proportion of athletes on probation at some time or other in their college course was more than three times as large as the proportion of non-athletes.

b. Hours of Work Carried

It was felt that the weight of the academic programs carried by members of the two groups would have interest. Accordingly, the numbers of program hours were tabulated for each semester of the normal four-year connection with the college, and, in cases that involved supplementary attendance, for the following academic year as well. The relationships are set forth in Table 3.

TABLE 3

AVERAGE OF HOURS OF ACADEMIC WORK CARRIED BY ATHLETES AND NON-ATHLETES

Semester	*Year*	*Athletes Average Hours*	*Non-Athletes Average Hours*	*Differences*
Fall	1921	15.06	15.91	−.85
Spring	1922	14.90	15.82	−.92
Fall	1922	16.25	16.84	−.59
Spring	1923	15.84	17.50	−1.66
Fall	1923	15.72	16.48	−.76
Spring	1924	15.50	15.93	−.43
Fall	1924	16.32	15.42	+.90
Spring	1925	15.61	14.97	+.64
Fall	1925	12.60	12.69	−.09
Spring	1926	11.81	13.47	−1.66
Average, all semesters		14.85	15.43	−.58

As a check upon method, all of these figures were subjected to mathematical tests[1] similar to those imposed upon the figures affecting graduation and probation. It is interesting to note that in all semesters except those of the senior year, the athletes carried programs lighter in hours on the average than the non-athletes.

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[1] The validity of checks of this type has been questioned with some justice. It is pointed out that they represent an attempt to set up a series of controls internal to the material—a process that by its nature can never attain the trustworthiness of methods employed for tests in the laboratory sciences. There, control is established through subjecting normal, analogous, or similar subjects to conditions that are as nearly as possible the same as those to which the materials to be tested are subjected. Thus, the controls are external to the materials. Here, the checking units are derived by formulas from the materials undergoing the tests. The reason for applying the checks to the present data was the desire to make use of every possible and available means of verification, not an implicit faith in the validity of the process.

3. *Records Involving Grades Assigned in Courses*

The grades achieved by the two groups were recorded mainly in a literal system of marking, with pluses and minuses beginning with A+ as the highest mark, omitting E, and ending with F−, the lowest mark. In office computations a system of numerical equivalents is in current use at Columbia College, by means of which averages may be computed. The literal grades and their numerical equivalents are set forth in Table 4:

TABLE 4

LITERAL GRADES AND NUMERICAL EQUIVALENTS IN USE AT COLUMBIA COLLEGE

Literal Grades	*Numerical Equivalent*
A+	16
A	15
A−	14
B+	12
B	11
B−	10
C+	9
C	8
C−	7
D+	6
D	5
D−	4
F+	2
F	1
F−	0

This system of equivalents was employed in striking averages in the present enquiry.

In certain cases, however, numerical grades on the basis of 100 were officially recorded instead of literal grades. Under such conditions, it was necessary, first, to transmute these numerical grades into literal grades and then into the numerical values indicated in Table 4. The following values were used for the first part of the process:

TABLE 5

GRADES ON THE BASIS OF 100 AND THEIR ASSIGNED LITERAL VALUES

Grade, Basis 100	*Assigned Literal Value*
94–100	A
87–93	B
80–86	C
75–79	D
74 or below	F

Thus, a grade of 79 became D+, which has a numerical equivalent of 6, while a grade of 90 became B, with a numerical equivalent of 11. Although this process inevitably produces a certain amount of distortion, it is believed not to be sufficient to invalidate any result into which it enters.

Certain other procedures that were adopted bear upon the averages. First, if a man completed a course with a grade of D or F, that grade was used in computations.

If, however, he underwent successfully a deficiency or "make-up" examination, the grade assigned in that examination superseded the failing course grade previously assigned. Second, if a man received a mid-year mark in a full-year course, in which he was regularly enrolled, but did not continue the course further, no grade assigned to him in that course was used. Third, in computing combined averages, work done in years spent in other colleges of Columbia University was included when it counted for the degree at Columbia College and bore upon eligibility for participation in athletics. The colleges in which such work was done were the Colleges of Architecture, Commerce, Engineering, Journalism, Law, and Medicine. No grades received in a summer school or in extension courses were included.

The results of the computations are exhibited in two tables. One, Table 6, sets forth average intelligence scores, total average grades, and average grades for semesters of the college course. The other, Table 7, which is arranged according to sports and divided into two parts, shows average intelligence scores and average grades. Each set of computations was tested by all of the checks previously described.

TABLE 6

AVERAGE INTELLIGENCE SCORES AND GRADES

Item or Time	*No. of Athletes*	*No. of Non-Athletes*	*Mean of Athletes*	*Mean of Non-Athletes*	*Roughly Corresponding Literal Grades, Athletes*	*Roughly Corresponding Literal Grades, Non-Athletes*
Intelligence Scores	86	337	77.74	79.01		
Total Average Grade	86	337	8.4	8.7	C	C+
Average Grades:						
Fall, 1921	83	320	8.1	8.4	C	C
Spring, 1922	76	302	8.7	9.0	C+	C+
Fall, 1922	74	261	8.7	9.3	C+	C+
Spring, 1923	72	255	9.1	9.4	C+	C+
Fall, 1923	72	226	9.1	9.7	C+	B−
Spring, 1924	68	219	9.1	10.0	C+	B−
Fall, 1924	65	202	9.0	9.6	C+	B−
Spring, 1925	64	184	9.1	9.6	C+	B−
Fall, 1925	16	41	8.6	8.5	C+	C+
Spring, 1926	13	31	7.8	8.7	C	C+

Although the athletes and the non-athletes may be regarded as of practically the same level of intelligence, the non-athletes average C+ in their course grades, whereas the athletes averaged C. This difference in average scholarship is also small; but the likelihood that it has some significance is enhanced by the fact that such scholarship differences as are found are favorable to the non-athletes in nine out of ten semesters. The best work of the non-athletes was done during the academic years 1923–24 and 1924–25, which may be regarded normally as their junior and senior years. The second semester of the junior year produced their highest scholastic averages, whereas, in the case of athletes, the first semester of the junior year brought the highest average.

TABLE 7, PART 1

AVERAGE INTELLIGENCE TEST SCORES BY SPORTS

(Numbers in parentheses following designation of sports refer to the position of each sport in relation to scholarship grades in Table 7, Part 2)

Sport	*Number of Men*	*Average Intelligence Test Score*
1. Tennis (3)	6	87.16
2. Fencing (1)	5	81.10
3. Wrestling (2)	10	80.91
4. Rowing (5)	8	80.75
5. Water Polo (4)	4	80.75
6. Golf (7)	4	79.25
Non-athletes	337	79.01
Athletes	86	77.74
7. Football (8)	22	73.47
Two or more sports	17	73.30
8. Track (6)	5	69.90

TABLE 7, PART 2

AVERAGE SCHOLARSHIP GRADES BY SPORTS

(Numbers in parentheses following designation of sports refer to the position of each sport in relation to intelligence test scores in Table 7, Part 1)

Sport	*Number of Men*	*Average Scholarship Grade*	*Corresponding Literal Grade*
1. Fencing (2)	5	9.7	B–
2. Wrestling (3)	10	9.6	B–
3. Tennis (1)	6	9.4	C+
4. Water Polo (5)	4	9.3	C+
5. Rowing (4)	8	8.8	C+
Non-athletes	337	8.7	C+
6. Track (8)	5	8.6	C+
Two or more sports	17	8.6	C+
Athletes	86	8.4	C
7. Golf (6)	4	7.3	C–
8. Football (7)	22	7.3	C–

The average intelligence test scores, when inspected from the point of view of participation in various sports, yield interesting comparisons with average scholastic grades. The tennis men did well in both respects. Football men did not. Indeed, football men received lower grades on the average than the athletes who participated in two or more sports. The relative places of the wrestlers in both tables will doubtless surprise those who do not associate the physical appearance of the wrestler with either high intelligence or high scholarship. On the other hand, the rank of the track men in both intelligence and average grades is perhaps equally astonishing.

a. The Selection of Hard and Easy Courses

One of the commonest accusations brought against the athlete is that he is an idler in his studies. The statement is frequently made that athletes tend to take easier courses in greater proportion than those who do not participate in athletics. In order to shed, if possible, some light upon these matters, special attention was given to data that seemed to bear upon them.

What is an "easy" course? What is a "hard" course? Most attempts to identify hard and easy courses hitherto have been subjective — matters of opinion. Indeed, the first approach to the present problem was made through the judgments of members of the Columbia College faculty and the student body. By a series of ratings from five members of the faculty, there were formed two groups containing fourteen courses in all, six "easy" and eight "hard." In ten of the fourteen cases, the judgments of the faculty members were independently confirmed by student comments printed in the college newspaper.[1] On the average, grades were actually found to be higher in the "easy" courses thus selected than in the "hard." Moreover, all of the "easy" courses were shown, by average grades, to be "easier" than the "easiest" of the "hard" courses, with one exception, which student criticism indicated to be difficult but stimulating. On the other hand, it was felt that even a composite of subjective judgments of certain teachers and students concerned rather the reputation of these fourteen courses than their actual difficulty or ease. Furthermore, in attempting to apply this method of classifying courses in other institutions, grave dangers might ensue, among the least of which would probably be a lack of trustworthiness in result. Attention was therefore turned to other means of labeling courses as "easy" or "hard."

The means finally adopted is believed to be as nearly objective as it is possible to employ. Grades were studied, not on the basis of the average grade assigned in each course, but on comparison of each student's grade with his own average grade for the semester. The final definition of an "easy" course was, therefore, a course in which a high proportion of the students who took it received in that course higher grades than their averages for all of the courses that they took during that semester. This definition automatically compensates for changes in instructors and course standards. It is felt to furnish a searching, and at the same time a fair, criterion.

The 423 students in the two groups, athletes and non-athletes, took during their stay in Columbia College a total of 380 different courses. From this total, all required courses were eliminated as not leaving sufficient opportunity for the exercise of the student's own volition; only electives remained. Moreover, no course was considered which was taken by fewer than six athletes or six non-athletes. In consequence, there were left for intensive consideration 85 different courses. On the basis of the percentage of students who received in each course grades higher than their average for the semester in which the course was taken, these 85 courses were tabulated for distribution. In the division of the courses into the five groups, Hard, Medium Hard, Average, Medium Easy, and Easy, the lines of demarcation between the groups were somewhat arbitrarily drawn, but at the same time the distribution throws the courses roughly into this grouping.

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[1] *The Spectator*, April 28, 1927.

For each of these five groups, distribution, range, and frequency of the percentages of students who received higher grades than their average course grades for the semester is shown distributed in Table 8.

TABLE 8

DISTRIBUTION OF COURSES ACCORDING TO DIFFICULTY
WITH PERCENTAGES OF STUDENTS WHO RECEIVED IN PARTICULAR COURSES HIGHER GRADES THAN THEIR SEMESTER AVERAGES

Ratings of Courses	*Number of Courses*	*Percentages in these Courses*[1]
Hard	8	14, 21, 22, 23, 24 (3), 25
Medium Hard	17	31, 32, 33 (3), 34 (2), 35, 37 (4), 38 (4), 39
Average	29	41 (3), 42 (3), 43 (5), 44 (4), 45 (7), 46 (2), 47, 48, 49 (3)
Medium Easy	21	51 (2), 52 (6), 53 (2), 54 (2), 55, 56 (5), 57 (2), 58
Easy	9	61, 63 (2), 67 (2), 71, 75, 76 (2)

For the moment our concern with these steps touches only validity of the methods employed. The first check imposed was naturally a comparison of the results gained from the subjective method of classifying "hard" and "easy" courses and from the objective method. That current faculty and student opinion concerning the ease and difficulty of courses does not agree with the statistical facts is shown by the coincidence of the subjective list of 14 courses and the objective list of 85 courses at only three points. In other words, only two courses reported to be hard and one course reported to be easy are correctly appraised by popular opinion. One course appeared, at first, to be erroneously classified as hard. The average grade in the course was high. Yet 86 per cent of the students who took it received lower grades in it than their own average grade for the semester. The explanation is probably something like this: Those who take this course probably form a highly selected group in terms of scholarship, and even this selected group finds the course difficult in comparison with other courses. It thus becomes apparent that the mere fact that the average grade in a course is high, or low, does not prove that the course is easy, or hard.

b. Grades of Athletes and Non-Athletes in Hard and Easy Courses

The courses having been thus classified, it remained to compare the grades assigned in them to the two groups of students, athletes and non-athletes. In order to proceed upon the safest possible grounds, only the eight "hard" courses and the nine

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[1] For example, in the first course listed, only 14 per cent of the students received higher grades than their average for the semester. As regards the fifth entry, 24 per cent of the students received, in three courses, grades higher than their average for the semester.

"easy" courses, as defined and grouped by the objective tests — the two ends of the scale, so to speak — were considered. The comparisons of average grades are set forth in Table 9, in which roman numerals are substituted for the names or designations of the 17 courses.

TABLE 9

AVERAGE GRADES IN HARD AND EASY COURSES WITH PROPORTIONS OF THE GROUPS TAKING THE COURSE

Hard Courses	*Proportion taking Course*		*Average Grade*	
	Athletes	*Non-Athletes*	*Athletes*	*Non-Athletes*
I	0.116	0.145	7.70	8.57
II	0.093	0.178	8.25	8.18
III	0.069	0.023	6.33	7.87
IV	0.104	0.097	10.33	9.21
V	0.081	0.100	8.28	8.61
VI	0.081	0.083	8.14	9.50
VII	0.128	0.074	6.18	8.00
VIII	0.116	0.071	8.50	7.92
AVERAGE	0.099	0.096	7.96	8.48
Easy Courses				
IX	0.069	0.080	12.16	12.40
X	0.104	0.127	10.44	10.25
XI	0.116	0.139	10.70	10.70
XII	0.116	0.083	10.30	11.00
XIII	0.093	0.062	11.75	11.47
XIV	0.081	0.080	9.42	10.51
XV	0.221	0.151	9.42	10.06
XVI	0.070	0.059	10.67	10.80
XVII	0.140	0.110	9.91	10.35
AVERAGE	0.101	0.099	10.53	10.84

It will thus be seen that a greater proportion of athletes than non-athletes tended to elect hard courses, but, on the other hand, the same is true of the easy courses. Indeed, a higher proportion of both groups tended to elect easy courses than hard. In the hard courses that were elected, athletes averaged about C−, non-athletes about C+. In the easy courses, both groups did better; the athletes averaging barely B and the non-athletes a little higher in the same letter-division.

c. The Passing Line

The last treatment to which the course grades were subjected grew out of the question whether the grades assigned to athletes or to non-athletes tended to group themselves about the passing line. The significance of the passing line, which lies between C − and D+, is the requirement that a Columbia student, in order to be eligible for participation in intercollegiate competition, must do passing work in at least twelve hours of his program.

In solving this problem, the first step was to select the several courses taken by the largest numbers of men under consideration. The courses selected numbered fourteen, each of which was taken by at least one hundred[1] of the men whose records were being studied, and they were given by five different departments, as follows: Chemistry, 1 course; Economics, 2 courses; English, 1 course; French, 6 courses; Government, 2 courses; and History, 2 courses. An analysis of the grades received during the period 1921–26 by members of the class of 1925 who took these courses indicates a considerable preponderance among athletes of marks just above passing. Of all of the marks received by them, 17.9 per cent were C— and 26.8 per cent C, a total of 44.7 per cent, as compared with 14 per cent C— and 20.4 per cent C, a total of 34.4 per cent, among non-athletes. These percentages reflect the situation both in general, and in respect of individual courses among the fourteen under enquiry. Athletes received more marks of C— than non-athletes in nine of the fourteen courses, and more marks of C in every course. In seven courses the tendency was pronounced, although in two courses no marked difference in the distribution of the grades of athletes as compared with non-athletes appeared.

CONCLUSIONS

One method of comparing the scholarship of athletes and of non-athletes has been outlined in some detail, and certain of its limitations and a few of the sources of possible error have been mentioned. The mathematical processes are relatively simple, and the uses to which they are put are widely known. The first questions that concern us are these: Are the steps that make up the proposed method valid? and, If followed, will they lead to a series of results from which accurate conclusions can be drawn by any one fairly well versed in the interpretation of statistics? It is believed that both of these questions can be answered in the affirmative with some assurance.

At two points, however, objection to details of the method has already been raised. Some friendly critics have felt that team managers should have been included in the enquiry, while others have believed that special information in the possession of various persons should have been availed of in accounting for seeming anomalies in the records of the study. The reason for the exclusion of team managers has been set forth. The ideal of objectivity accounts for the attempt to ground the enquiry in printed, published documents.

If, then, the method employed is sound, certain generalizations from the study are permissible. With respect to the class of 1925 in Columbia College, those members who participated in sport and those who did not, appear to be of about the same intelligence. On the basis of course grades, however, the athletes in their studies fell below the non-athletes. In spite of the fact that the athletes tended to remain longer in college, a smaller proportion received degrees and a much greater proportion of athletes incurred probation. The athletes tended to carry lighter programs. Both athletes and non-athletes elected easy courses more frequently than hard, and in them received higher grades than in the courses that are demonstrable statistically as more difficult. Finally, the grades of athletes show a stronger tendency to gravitate toward the passing line than the grades of non-athletes, and athletes received on the whole more marks of C— or of C than their classmates.

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[1] In smaller institutions, this limitation might be reduced to an appropriate number. A guide to such a reduction might be the proportion that the average of undergraduate men in the smaller institution during the period under enquiry bears to 2025, which approximates the average number of men undergraduates in Columbia College during the years 1921–26. Thus, in a college which averaged 500 men undergraduates over the period 1922–27, or 1923–27, according to whether five years or four were needed to complete their records, the limitation would be 24 electing such courses, and not the one hundred of the Columbia enquiry.

Both this method and these conclusions are proposed, not as innovations or as unusual generalizations, but as the results of extended preliminary efforts to answer the question, What is the relation of the scholarship of athletes to that of non-athletes in American universities and colleges? In the past, the matter has excited wide interest and much discussion, both within and outside of college walls. With the coöperation of a number of colleges and universities in supplying comparable data, conclusions can be drawn to cover a much larger field and to reach a much greater validity. Finally, it is hoped that the method will commend itself to any institution seeking a method of comparing the achievements of one group of its students with another. Its applicability extends far beyond the field of athletics and scholarship.

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Publications of the Carnegie Foundation dealing with College Athletics

Bulletin Number Eighteen, *Games and Sports in British Schools and Universities*, 252 pages, 1927.

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- The Eighteenth, 1923, pages 33–37, *The Abuses of College Athletics.*
- The Nineteenth, 1924, pages 104–107, *Some By-Products of Educational Progress.*
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- The Twenty-first, 1926, pages 145–152, *Athletics at Oxford and Cambridge.*

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48667